

Proportional pressure regulators MPPE/MPPES

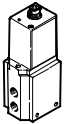
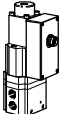
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Proportional pressure regulators MPPE/MPPEs

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Product range overview

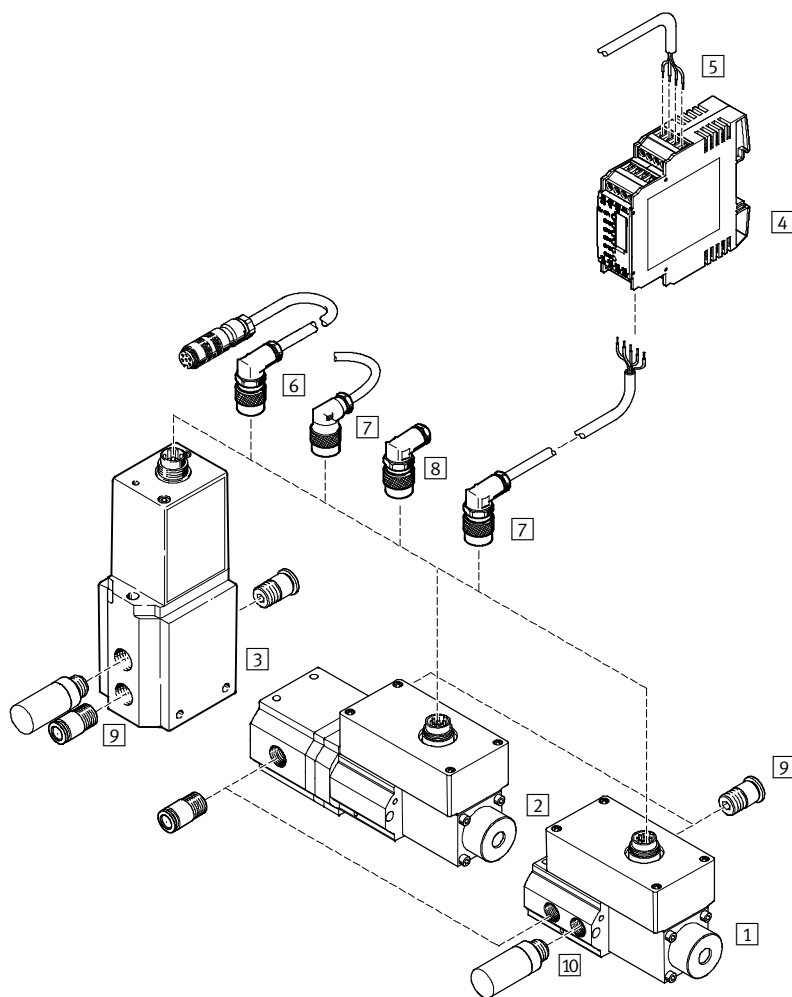
Function	Version	Type	Design	Pneumatic connection 1	Nominal size pressurise/ exhaust [mm]	Pressure regulation range ¹⁾ [bar]	Setpoint input		→ Page/ Internet
							Voltage type	Current type	
							0 ... 10 V	4 ... 20 mA	
Pressure regulators	With pilot control via 2/2-way valves (switching valves)								
		MPPE	Pilot-actuated valve	G1/8	5/5	0 ... 1	■	■	5
				G1/4	7/7	0 ... 2.5	■	■	
				G1/2	11/12	0 ... 6	■	■	
	With proportional solenoid								
		MPPEs	Directly actuated valve	G1/8	3/2	0 ... 2	■	■	11
			Pilot-actuated valve	G1/4	7/7	0 ... 6	■	■	
				G1/2	11/12	0 ... 10	■	■	

1) Pressure regulation range also by customer request

Proportional pressure regulators MPPE/MPPEs

Peripherals overview

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Accessories				
	Type	Brief description	→ Page/Internet	
1	Proportional pressure regulator	MPPEs	Directly controlled	11
2	Proportional pressure regulator	MPPEs	Indirectly controlled	11
3	Proportional pressure regulator	MPPE	–	5
4	Setpoint module MPZ	MPZ	For generating 6+1 analogue voltage signals	15
5	Digital input/output	–	For controlling the setpoint module	–
6	Connecting cable	KVIA-MPPE	–	15
7	Plug socket with cable	KMPE-B	–	
8	Angled socket	MPPE-3-B	–	
9	Push-in fitting	QS	For connecting compressed air tubing	quick star
10	Silencer	U	For fitting in exhaust ports	u

Proportional pressure regulators MPPE

Type codes

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Basic version

		MPPE	-	3	-	1/8	-	1	-	010	-	B
Type												
MPPE	Proportional pressure regulator with switching valve head											
Valve function												
3	3-way pressure regulator											
Pneumatic connection												
1/8	Female thread G1/8											
1/4	Female thread G1/4											
1/2	Female thread G1/2											
Pressure regulation range												
1	0 ... 1 bar											
2,5	0 ... 2.5 bar											
6	0 ... 6 bar											
10	0 ... 10 bar											
Analogue setpoint input												
010	0 ... 10 V											
420	4 ... 20 mA											
Generation												
B	B series											

Special pressure regulation range by customer request

		MPPE	-	3	-	1/8	-	2	-	4	-	010	-	B
Type														
MPPE	Proportional pressure regulator with switching valve head													
Valve function														
3	3-way pressure regulator													
Pneumatic connection														
1/8	Female thread G1/8													
1/4	Female thread G1/4													
1/2	Female thread G1/2													
Required pressure at 0 V or 4 mA [bar]														
Required pressure at 10 V or 20 mA [bar]														
Analogue setpoint input														
010	0 ... 10 V													
420	4 ... 20 mA													
Generation														
B	B series													

Proportional pressure regulators MPPE

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Technical data

-  - Flow rate
350 ... 8,800 l/min

-  - Voltage
18 ... 30 V DC

-  - Pressure regulation range
0 ... 1 bar
0 ... 2.5 bar
0 ... 6 bar
0 ... 10 bar

Variants

- Setpoint input as analogue voltage signal 0 ... 10 V
- Setpoint input as analogue current signal 4 ... 20 mA

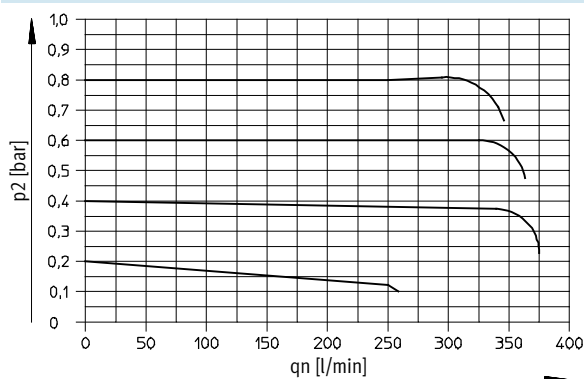


General technical data				
Pneumatic connection			G $\frac{1}{8}$	G $\frac{1}{4}$
Design			Pilot-actuated piston regulator	
Sealing principle			Soft	
Actuation type			Electrical	
Type of control			Pilot-actuated via 2/2-way valves	
Type of mounting			Via through-hole	
Mounting position			Any	
Nominal size	Pressurisation	[mm]	5	7
	Exhaust	[mm]	5	7
Standard nominal flow rate			→ Graphs	
Product weight			710	920
				2,400

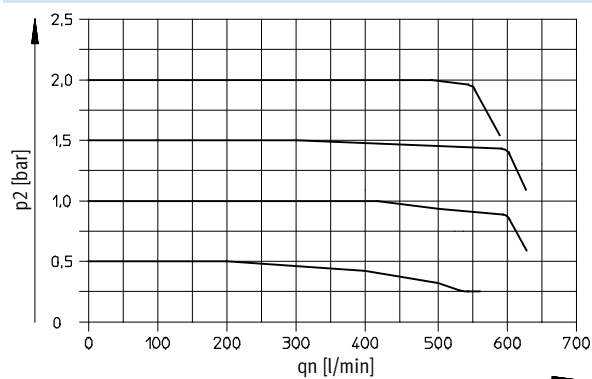
Flow rate qn as a function of output pressure p2

Pneumatic connection G $\frac{1}{8}$

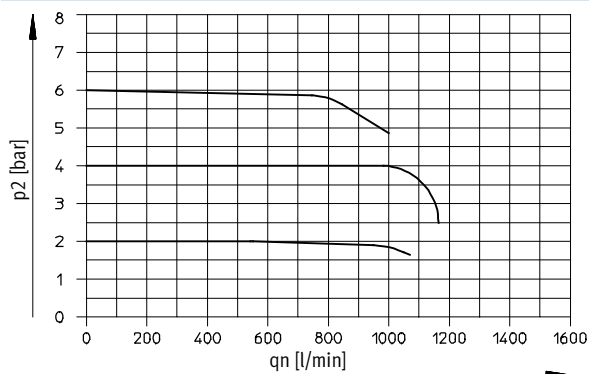
Pressure regulation range 0 ... 1 bar



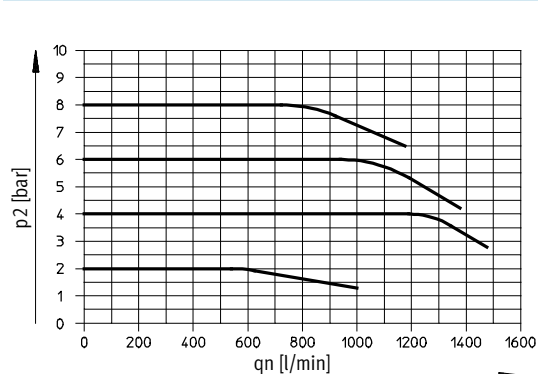
Pressure regulation range 0 ... 2.5 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar



Proportional pressure regulators MPPE

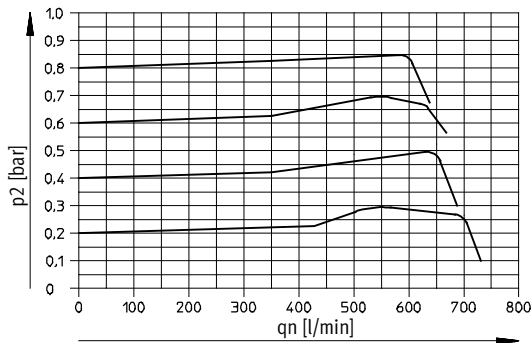
Technical data

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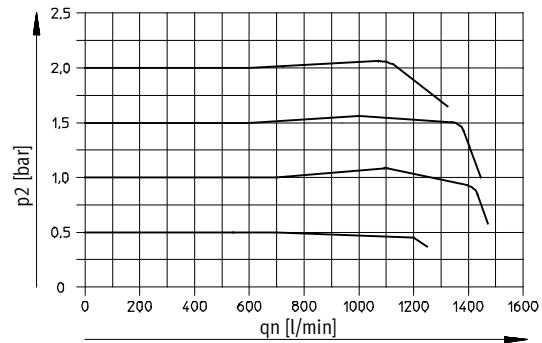
Flow rate q_n as a function of output pressure p_2

Pneumatic connection G $\frac{1}{4}$

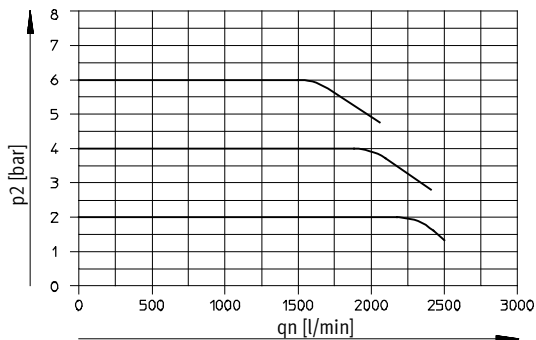
Pressure regulation range 0 ... 1 bar



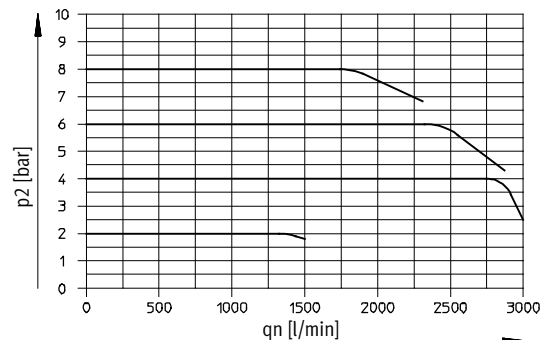
Pressure regulation range 0 ... 2.5 bar



Pressure regulation range 0 ... 6 bar

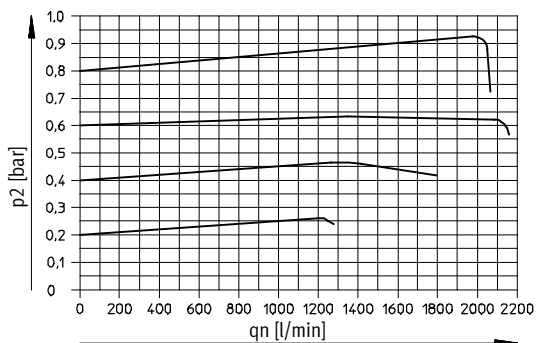


Pressure regulation range 0 ... 10 bar

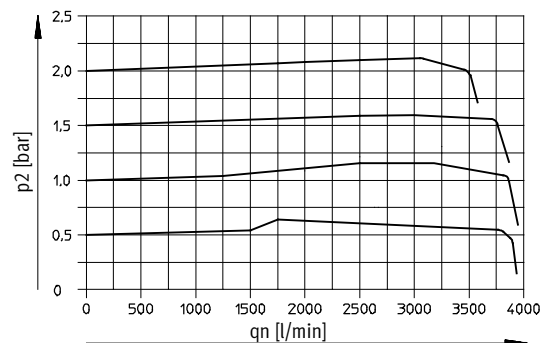


Pneumatic connection G $\frac{1}{2}$

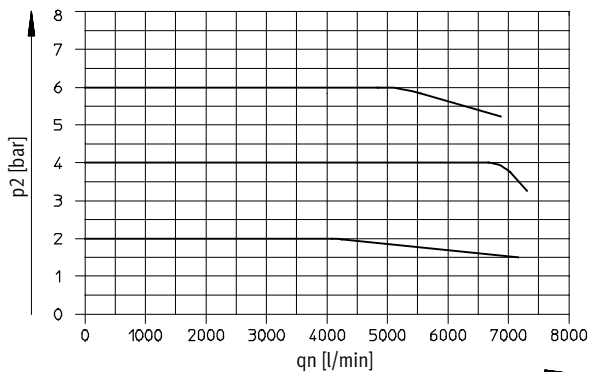
Pressure regulation range 0 ... 1 bar



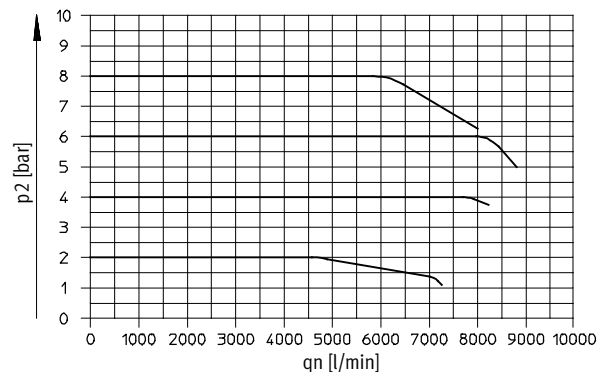
Pressure regulation range 0 ... 2.5 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar



Proportional pressure regulators MPPE

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Technical data

Operating and environmental conditions					
Pressure regulation range	[bar]	0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]			
		Inert gases			
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)			
Supply pressure 1	[bar]	1.5 ... 2	3.5 ... 4.5	7 ... 8	11 ... 12
Max. pressure hysteresis	[mbar]	30	40	40	50
Ambient temperature	[°C]	0 ... 50			
Temperature of medium	[°C]	0 ... 60			
Corrosion resistance class	[CRC]	2 ¹⁾			

1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Electrical data						
Pressure regulation range		[bar]	0 ... 1	0 ... 2.5	0 ... 6	0 ... 10
Electrical connection			Plug, round design to DIN 45 326, M16 x 0.75, 8-pin			
Operating voltage range		U _B	[V DC]	18 ... 30		
Residual ripple			10%			
Power consumption		P _{max.}	[W]	3.6 (at 30 V DC and 100% duty cycle)		
Setpoint input signal	Voltage	V _w	[V DC]	0 ... 10		
	Current	I _w	[mA]	4 ... 20		
Actual value output signal	Voltage	V _x	[V DC]	0 ... 10		
	Current	I _x	[mA]	4 ... 20		
Actual value input signal, external	Voltage	V _{x,ext.}	[V DC]	0 ... 10		
	Current	I _{x,ext.}	[mA]	4 ... 20		
Protection class to DIN 60 529			IP65 (with connection socket)			
Safety note			In the event of a broken supply power wire or setpoint wire, output pressure remains and is uncontrolled. In the long-term, leakage results in pressure drop.			
Reverse polarity protection	Setpoint input, voltage signal 0 ... 10 V		For all electrical connections			
	Setpoint input, current signal 4 ... 20 mA		For operating voltage			
Protection against short circuit			Yes, for the types with voltage signal as setpoint input			

Materials	
Housing	Wrought aluminium alloy
Seals	NBR

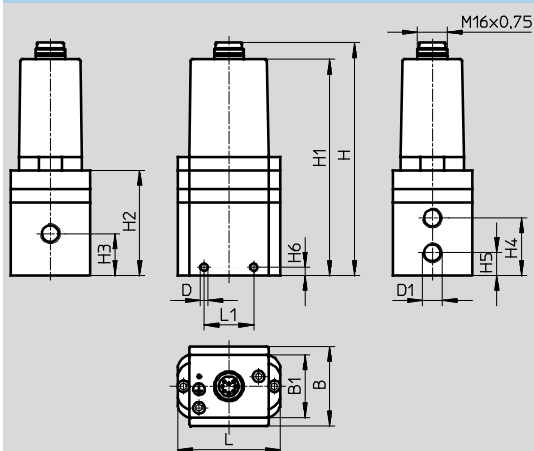
Proportional pressure regulators MPPE

Technical data

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Dimensions

Download CAD data → www.festo.com



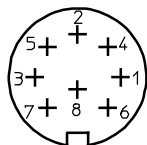
Connection D1	B	B1	∅D	H	H1	H2	H3	H4	H5	H6	L	L1
G1/8	38	–	4.5	129.1	119.1	60.2	18.8	26.8	9.3	4	62	34
G1/4	48	38	4.5	140.7	130.7	63.6	25.3	34.8	13.8	5	62	30
G1/2	76	38	7	194.6	184.6	117.5	53	74	32	18	86	50

Proportional pressure regulators MPPE

Technical data

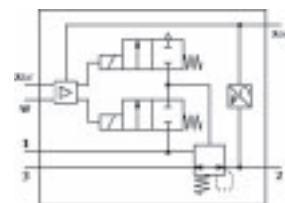
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Pin allocation



1	WH	$X_{\text{ext, in}}$ (external actual value input)
2	BN	GND
3	GN	GND
4	YE	W_{in} (setpoint input)
5	GY	10 V _{out} (external potentiometer supply)
6	PK	X_{out} (actual value output)
7	RD	24 V DC (supply voltage)
8	BU	GND

Switching function



Ordering data					
Pneumatic connection		Pressure regulation range [bar]		Voltage type 0 ... 10 V	
		Part No.		Type	
Current type 4 ... 20 mA					
		Part No.		Type	
Basic version					
G ¹ / ₈	0 ... 1	161160	MPPE-3-1/8-1-010-B	161163	MPPE-3-1/8-1-420-B
	0 ... 2.5	164315	MPPE-3-1/8-2,5-010-B	164316	MPPE-3-1/8-2,5-420-B
	0 ... 6	161161	MPPE-3-1/8-6-010-B	161164	MPPE-3-1/8-6-420-B
	0 ... 10	161162	MPPE-3-1/8-10-010-B	161165	MPPE-3-1/8-10-420-B
G ¹ / ₄	0 ... 1	161166	MPPE-3-1/4-1-010-B	161169	MPPE-3-1/4-1-420-B
	0 ... 2.5	164317	MPPE-3-1/4-2,5-010-B	164318	MPPE-3-1/4-2,5-420-B
	0 ... 6	161167	MPPE-3-1/4-6-010-B	161170	MPPE-3-1/4-6-420-B
	0 ... 10	161168	MPPE-3-1/4-10-010-B	161171	MPPE-3-1/4-10-420-B
G ¹ / ₂	0 ... 1	161172	MPPE-3-1/2-1-010-B	161175	MPPE-3-1/2-1-420-B
	0 ... 2.5	164319	MPPE-3-1/2-2,5-010-B	164320	MPPE-3-1/2-2,5-420-B
	0 ... 6	161173	MPPE-3-1/2-6-010-B	161176	MPPE-3-1/2-6-420-B
	0 ... 10	161174	MPPE-3-1/2-10-010-B	161177	MPPE-3-1/2-10-420-B
Special adaptation type ¹⁾					
G ¹ / ₈	0 ... 10	164330	MPPE-3-1/8-...-010-B ¹⁾	164330	MPPE-3-1/8-...-420-B ¹⁾
G ¹ / ₄	0 ... 10	164331	MPPE-3-1/4-...-010-B ¹⁾	164331	MPPE-3-1/4-...-420-B ¹⁾
G ¹ / ₂	0 ... 10	164332	MPPE-3-1/2-...-010-B ¹⁾	164332	MPPE-3-1/2-...-420-B ¹⁾

1) The special adaptation type allows a lower pressure to be assigned to the setpoint 0 V or 4 mA and an upper pressure to be assigned to the setpoint 10 V or 20 mA. Upper and lower pressure by customer request.

Proportional pressure regulators MPPES

Type codes

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Basic version

		MPPES	–	3	–	1/8	–	1	–	010
Type										
MPPES	Proportional pressure regulator with proportional solenoid									
Valve function										
3	3-way pressure regulator									
Pneumatic connection										
1/8	Female thread G1/8									
1/4	Female thread G1/4									
1/2	Female thread G1/2									
Pressure regulation range										
2	0 ... 2 bar									
6	0 ... 6 bar									
10	0 ... 10 bar									
Analogue setpoint input										
010	0 ... 10 V									
420	4 ... 20 mA									

Special pressure regulation range by customer request

		MPPES	–	3	–	1/8	–	2	–	4	–	010
Type												
MPPES	Proportional pressure regulator with proportional solenoid											
Valve function												
3	3-way pressure regulator											
Pneumatic connection												
1/8	Female thread G1/8											
1/4	Female thread G1/4											
1/2	Female thread G1/2											
Required pressure at 0 V or 4 mA [bar]												
Required pressure at 10 V or 20 mA [bar]												
Analogue setpoint input												
010	0 ... 10 V											
420	4 ... 20 mA											

Proportional pressure regulators MPPES

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Technical data

-  Flow rate
230 ... 8,500 l/min

-  Voltage
18 ... 30 V DC

-  Pressure regulation range
0 ... 2 bar
0 ... 6 bar
0 ... 10 bar

Variants

- Setpoint input as analogue voltage signal 0 ... 10 V
- Setpoint input as analogue current signal 4 ... 20 mA

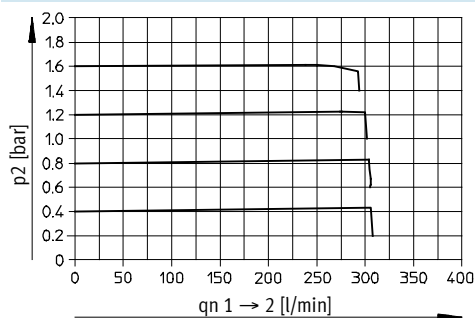


General technical data					
Pneumatic connection			G1/8	G1/4	G1/2
Design			Directly actuated piston regulator	Pilot-actuated piston regulator	
Sealing principle			Soft		
Actuation type			Electrical		
Type of mounting			Via through-hole		
Mounting position			Any		
Nominal size	Pressurisation	[mm]	3	7	11
	Exhaust	[mm]	2	7	12
Standard nominal flow rate		[l/min]	➔ Graphs		
Product weight		[g]	915	1,310	2,670

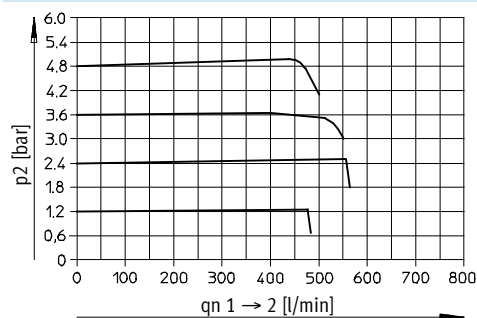
Flow rate qn as a function of output pressure p2

Pneumatic connection G1/8

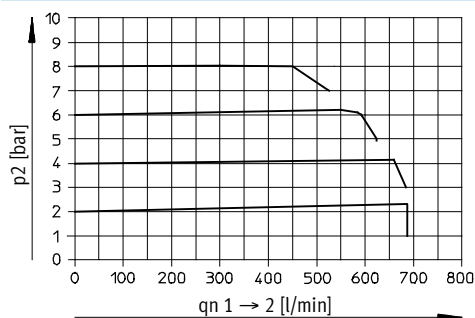
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar



Proportional pressure regulators MPPES

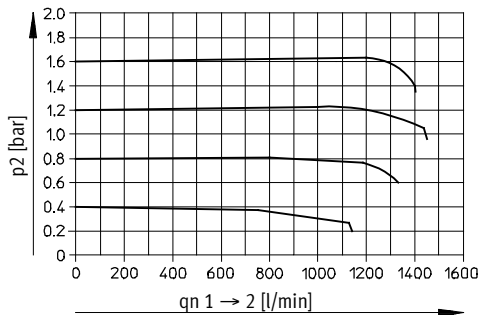
Technical data

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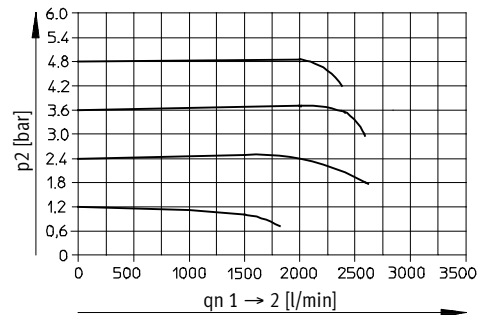
Flow rate q_n as a function of output pressure p_2

Pneumatic connection $G\frac{1}{4}$

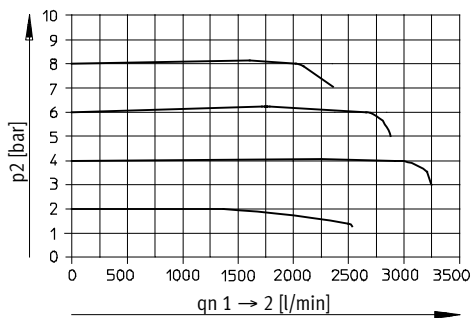
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar

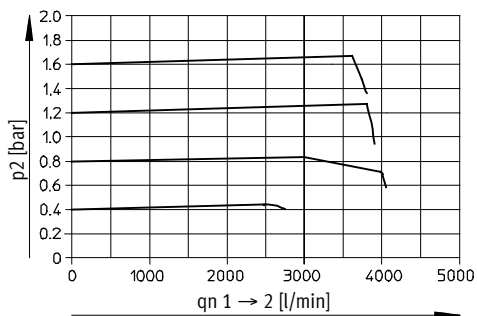


Pressure regulation range 0 ... 10 bar

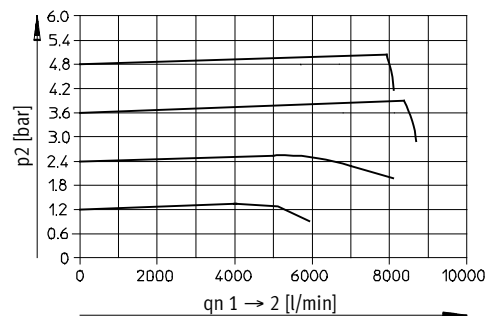


Pneumatic connection $G\frac{1}{2}$

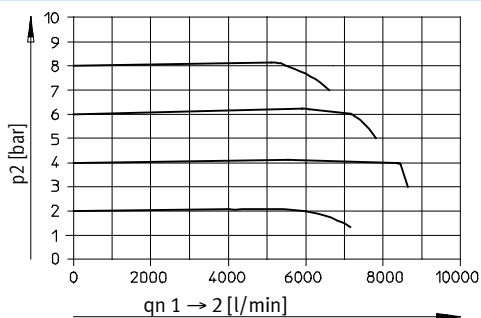
Pressure regulation range 0 ... 2 bar



Pressure regulation range 0 ... 6 bar



Pressure regulation range 0 ... 10 bar



Proportional pressure regulators MPPES

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Technical data

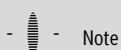
Operating and environmental conditions				
Pressure regulation range		[bar]	0 ... 2	0 ... 6
Operating medium			Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
			Inert gases	
Note on operating/pilot medium			Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Supply pressure 1		[bar]	3 ... 4	7 ... 8
Max. pressure hysteresis	1/8"	[mbar]	10	
	1/4"	[mbar]	50	
	1/2"	[mbar]	50	
Ambient temperature		[°C]	0 ... 50	
Temperature of medium		[°C]	0 ... 60	
Corrosion resistance class CRC			2 ¹⁾	

1) Corrosion resistance class 2 according to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Electrical data				
Pressure regulation range		[bar]	0 ... 2	0 ... 6
Electrical connection			Plug, round design to DIN 45 326, M16 x 0.75, 8-pin	
Operating voltage range		U _B	[V DC]	18 ... 30
Residual ripple			10%	
Power consumption		P _{max.}	[W]	20 (at 30 V DC)
Setpoint input signal	Voltage	V _w	[V DC]	0 ... 10
	Current	I _w	[mA]	4 ... 20
Actual value output signal	Voltage	V _x	[V DC]	0 ... 10
	Current	I _x	[mA]	4 ... 20
Protection class to DIN 60 529			IP65 (with connection socket)	
Safety note			Output pressure is not maintained if the power supply cable is interrupted	
Reverse polarity protection	Setpoint input, voltage signal 0 ... 10 V		For all electrical connections	
	Setpoint input, current signal 4 ... 20 mA		For operating voltage	
Protection against short circuit			Yes, for the types with voltage signal as setpoint input	

Materials	
Housing	Wrought aluminium alloy
Seals	NBR



Note

The working line is vented if the power supply cable is interrupted.

Proportional pressure regulators MPPES

Technical data

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Dimensions				Download CAD data → www.festo.com	
MPPES-3-1/8-...	MPPES-3-1/4-... MPPES-3-1/2-...	MPPES-3-1/4-... MPPES-3-1/2-...	MPPES-3-1/8-...		
The image contains five technical drawings of MPPES regulators. The first drawing on the left is a side view of a small regulator with dimensions H4, H5, D1, and two mounting holes labeled 2 and 3. The second drawing is a side view of a larger regulator with dimensions B1, B, H2, H3, and a mounting hole labeled 2. The third drawing is a front view of a larger regulator with dimensions H, H1, H6, D, L1, and L. The fourth drawing is a side view of a larger regulator with dimensions D1, H5, H4, and two mounting holes labeled 1 and 3. The fifth drawing on the right is a side view of a small regulator with dimensions H2, H3, and a mounting hole labeled 1. A vertical dimension M16x0.75 is shown for the side port of the fourth drawing.					

Connection D1	B	B1	∅D	H	H1	H2	H3	H4	H5	H6	L	L1
G1/8	77.1	67.1	4.4	116.5	100	55	34	45	23	4	62	34
G1/4	82.1	72.1	4.5	170.2	153.7	63.7	25.3	34.8	13.8	5	62	30
G1/2	96.1	86.1	7	227.1	210.6	120.6	53	74	32	18	86	50

Connections				Switching function			
Pin allocation				MPPES-3-1/8-... MPPES-3-1/4-.../MPPES-3-1/2-...			
1	WH	n.c.					
2	BN	GND					
3	GN	GND					
4	YE	W _{in} (setpoint input)					
5	GY	n.c.					
6	PK	X _{out} (actual value output)					
7	RD	24 V DC (supply voltage)					
8	BU	GND					

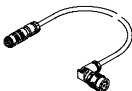
Ordering data					
Pneumatic connection	Pressure regulation range [bar]	Voltage type 0 ... 10 V		Current type 4 ... 20 mA	
		Part No.	Type	Part No.	Type
Basic version					
G1/8	0 ... 2	187350	MPPES-3-1/8-2-010	187351	MPPES-3-1/8-2-420
	0 ... 6	187352	MPPES-3-1/8-6-010	187353	MPPES-3-1/8-6-420
	0 ... 10	187348	MPPES-3-1/8-10-010	187349	MPPES-3-1/8-10-420
G1/4	0 ... 2	187335	MPPES-3-1/4-2-010	187336	MPPES-3-1/4-2-420
	0 ... 6	187337	MPPES-3-1/4-6-010	187338	MPPES-3-1/4-6-420
	0 ... 10	187333	MPPES-3-1/4-10-010	187334	MPPES-3-1/4-10-420
G1/2	0 ... 2	187328	MPPES-3-1/2-2-010	187329	MPPES-3-1/2-2-420
	0 ... 6	187330	MPPES-3-1/2-6-010	187331	MPPES-3-1/2-6-420
	0 ... 10	187326	MPPES-3-1/2-10-010	187327	MPPES-3-1/2-10-420
Special adaptation type ¹⁾					
G1/8	0 ... 10	187347	MPPES-3-1/8-PU-PO-010	187762	MPPES-3-1/8-PU-PO-420
G1/4	0 ... 10	187339	MPPES-3-1/4-PU-PO-010	187744	MPPES-3-1/4-PU-PO-420
G1/2	0 ... 10	187332	MPPES-3-1/2-PU-PO-010	187735	MPPES-3-1/2-PU-PO-420

1) The special adaptation type allows a lower pressure PU to be assigned to the setpoint 0 V or 4 mA and an upper pressure PO to be assigned to the setpoint 10 V or 20 mA. PU and PO by customer request.

Proportional pressure regulators MPPE/MPPEs

Accessories

FESTO

Ordering data				
	Description	Cable length [m]	Part No.	Type
Connecting cable			Technical data → Internet: kvia-mppe	
	Connecting cable to the analogue module of valve terminal type 03/04	5	163882	KVIA-MPPE-5
		10	163883	KVIA-MPPE-10
Plug socket with cable			Technical data → Internet: kmppe-b	
	Angled, 8-pin, M16x0.75	2.5	161879	KMPPE-B-2,5
		5	161878	KMPPE-B-5
Angled socket			Technical data → Internet: mppe	
	Angled, 8-pin, M16x0.75	–	161839	MPPE-3-B
Setpoint module			Technical data → Internet: mpz	
	Setpoint module for generating 6 + 1 analogue voltage signals	–	546224	MPZ-1-24DC-SGH-6-SW